

Meckel's Diverticulum as a Trap

Corinne Legeret, MD¹, Matteo Fontana, MD², Elisabeth Bruder, MD³, Raoul Furlano, MD¹

¹Department of Gastroenterology, University Children's Hospital Basel, Switzerland.

²Intensive Care Unit, Children's Hospital Lucerne, Switzerland.

³Department of Histopathology, University Hospital Basel, Switzerland.

Corinne.Legeret@ukbb.ch

***Corresponding Author:** Dr. Corinne Legeret, Department of Gastroenterology, University Children's Hospital Basel, Spitalstrasse 33, 4056 Basel, Switzerland.

Abstract

Although foreign body ingestion is a commonly seen accident in children and guidelines are available for the treatment, cases are not always straight forward as this report proves: A 7-year-old patient presented to the emergency department 2 hours after ingestion of a pin. Radiological imaging had revealed the foreign body to be already within the small bowel beyond reach of an endoscopy. On day 17 after ingestion the patient presented with recurrent abdominal pain and subfebrile temperatures. A laparotomy and revision of small bowel was performed, where a Meckel's diverticulum containing the pin was found and removed. We conclude that if a foreign body does not move antegrade anymore on imaging in 3 days, or the patient becomes symptomatic, surgical removal must be considered, also having the rare possibility of a Meckel's diverticulum functioning as a trap at the back of one's mind.

Keywords: Foreign body ingestion, endoscopy, guidelines, children

BACKGROUND

Foreign body (FB) ingestion is a commonly seen accident in paediatric emergency departments, in 2015, the American Poison Control Centres documented 68,371 FB ingestions in children under the age of 5 years (1). Despite its frequentness, the treatment remains challenging and is not always straight forward. Depending upon the site of impaction and the nature of the foreign body, patients may remain asymptomatic or may suffer from life threatening complications such as ulcerations, strictures or even perforations.

CASE REPORT

A 7-year-old previously healthy male patient presented to the emergency department 2 hours after ingestion of a pin. At the time of presentation physical examination revealed a well-appearing child without any symptoms at all: No drooling, vomiting, haematemesis, hoarseness, cough, respiratory distress and most of all, no pain at all. After radiological imaging had revealed the foreign body to be already within the small bowel

and had confirmed an absence of free air, the boy was discharged with the assignment to examine the stool, re-present if he develops pain and/or fever or latest in a week's time if the pin has not been passed. The patient re-presented the following day due to painful defecation and abdominal pain. His vital signs were within normal limits and there were no clinical or laboratory signs of peritonitis (Haemoglobin 11.2 g/dl, Leucocytes $6.3 \times 10^9/l$, Thrombocytes $340 \times 10^9/l$, C-reactive protein $<5 \text{ mg/l}$). A plain abdominal x-ray showed that the needle was now close to the ileocecal valve, again no free air was seen. He was admitted for further observation: Over the next five days the patient opened his bowels regularly (1-2 times per day) under mild pain, observation parameters were always normal and serial x-rays showed that the needle projected now to the rectum, where it stayed. On day 7 after ingestion, a rectoscopy was performed under general anaesthesia. The pin was not seen, but it was palpable from the rectum, extramural and relocatable, therefore a colonoscopy was performed. The terminal ileum was reached without detecting

Meckel's Diverticulum as a Trap

the needle. Assuming that the needle still must be in a part of the small bowel lying next to the rectum, it was decided to discharge the patient again and let him pass the foreign body naturally.

On day 17 after ingestion the patient presented again with recurrent abdominal pain and this time he had subfebrile temperatures. On examination his abdomen was soft but applying pressure on the pubic bone provoked the pain. Laboratory infection parameters were still within normal limits and radiography showed

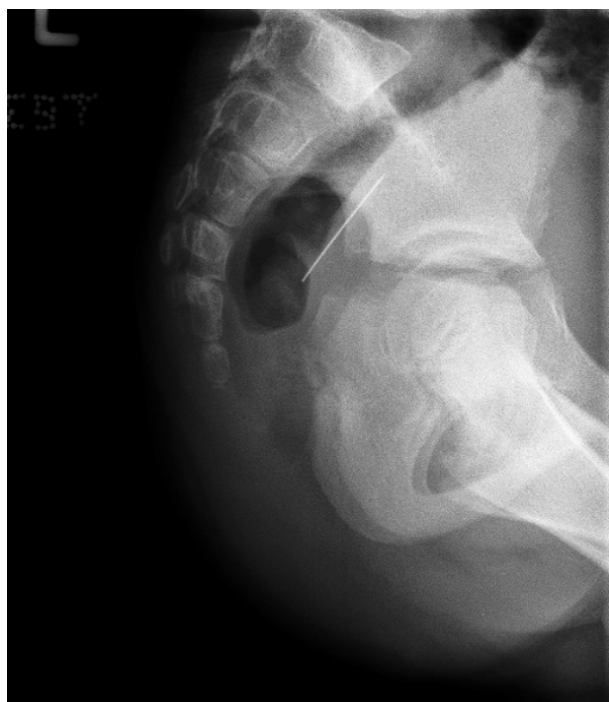


Fig 1. Abdominal x-ray 17 days after ingestion of the pin

DISCUSSION AND CONCLUSIONS

The majority (80%) of FB and food impactions will pass the gastrointestinal tract spontaneously(2). This number might even be higher, since this represents reported cases, of which around 40% occurred without the recognition of the parents. Only 10-20% of gastrointestinal foreign bodies will require endoscopic intervention, surgery is rarely needed.

As sharp or pointed FBs, animal or fish bones and magnets increase the risk of perforation, it is recommended to retrieve them endoscopically(3). In above's case, the FB was already beyond the reach of an upper endoscopy at first presentation, therefore an observant approach was chosen, as recommended in the latest guidelines(3).

that the pin had not moved for the past 10 days (figure 1, lateral view). The following day a laparotomy and revision of small bowel was performed, where a Meckel's diverticulum containing the pin was found and removed. Histological review revealed a Meckel's diverticulum (18 x 16 x 41 mm) with a captured needle head (figure 2) and a penetration of the whole ileal wall opposite the opening of the diverticulum by the tip of the needle (length of needle 33 mm). Microscopically a perifocal purulent inflammation with granulation in the small bowel serosa was seen.

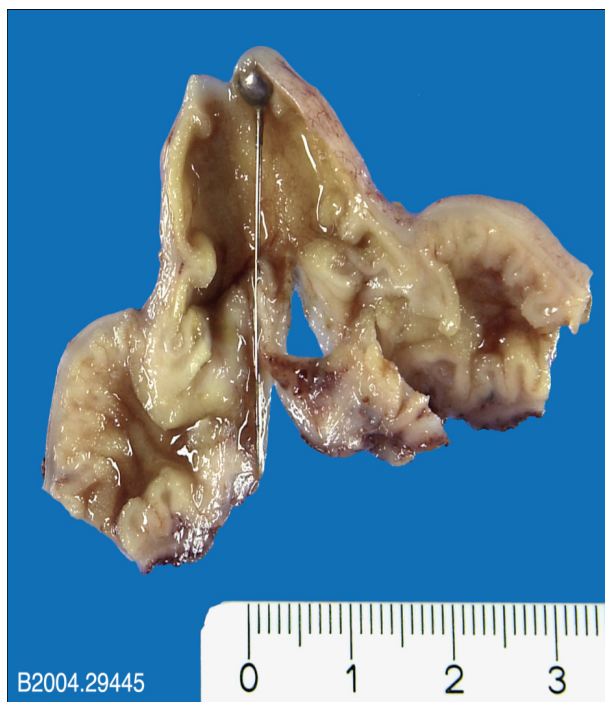


Fig 2. Meckel's diverticulum containing the pin

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract, found in 2% of the population in autopsy studies. Most patients with a Meckel's diverticulum remain asymptomatic during their lifetime, however, a literature research revealed that there are case reports(4,5), where a FB (chicken bone and melon seeds) caused perforation of the Meckel's diverticulum.

We therefore conclude that patients with a history of ingested FB, which has not been retrieved endoscopically, need a close follow-up with serial imaging. If the FB does not move antegrade anymore on imaging in 3 days, or the patient becomes symptomatic, surgical removal must be considered, also having the rare possibility of a Meckel's diverticulum functioning as a trap at the back of one's mind.

DECLARATIONS

- **Abbreviations:** Foreign body (FB)
- Ethics approval and consent to participate: Not applicable
- **Consent for publication:** Oral consent given by the patient and his parents. Written consent given by the patient (This case happened 2004, therefore the patient is an adult by now and can sign the consent himself. The patient himself asked for it to be published)
- **Availability of data and material:** All laboratory results, radiological imaging, summaries of consultations are saved in the clinical IT programme of the University Children's Hospital Basel, Switzerland. Everything is also saved on a CD and kept in the office of Dr. med. C. Legeret
- **Author's contributions:** CL and RF had the idea to publish this case report and drafted the first manuscript, MF contributed the radiological imaging, EB performed the histopathological analysis and contributed pictures of the macroscopic resection. All authors read and approved the final manuscript.

REFERENCES

- [1] Mowry JB, Spyker DA, Brooks DE, et al. 2015 annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 33rd annual report. *Clin Toxicol* 2016; 54(10): 924–1109.
- [2] Gregori D, Scarinzi C, Morra B, et al. ESFBI Study Group Ingested foreign bodies causing complications and requiring hospitalization in European children: results from the ESFBI study. *Pediatr Int.* 2010;52:26–32
- [3] Thomson M, Tringali A, Zambelli A et al. Paediatric Gastrointestinal Endoscopy: European Society for Paediatric Gastroenterology Hepatology and Nutrition and European Society of Gastrointestinal Endoscopy Guidelines. *J Pediatr Gastroenterol Nutr.* 2017 Jan;64(1):133-153.
- [4] Okur MH, Arslan MS, Otcu S, et al. Perforation of Meckel's diverticulum by foreign body. *J Pak Med Assoc.* 2014 Jul;64(7):826-7.
- [5] Cotirlet A, Anghel R, Popa E, et al. Perforation of Meckel's diverticulum by foreign body, a rare complication. *Chirurgia (Bucur).* 2013 May-Jun;108(3):411-3.

Citation: Corinne Legeret, Matteo Fontana, Elisabeth Bruder, Raoul Furlano, *PMeckel's Diverticulum as a Trap. Archives of Gastroenterology and Hepatology.* 2019; 2(1):01-03.

Copyright: © 2019 Corinne Legeret, Matteo Fontana, Elisabeth Bruder, Raoul Furlano, *This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*